

Amendments to the Drawings:

The attached sheet of drawings includes a change to FIG. 2. This sheet, which includes FIG. 2, replaces the original sheet including FIG. 2. In FIG. 2, the reference numeral “44” has been removed.

Attachment: Replacement Sheet

Annotated Sheet Showing Changes

REMARKS/ARGUMENTS

In paragraph 2 on page 2 of the Official Action, the drawings were objected to for using in FIG. 2 a reference number 44 not mentioned in the specification. In reply, FIG. 2 has been amended to remove the reference number 44.

In paragraph 4 on page 3 of the Official Action, claims 10 and 28 were rejected under 35 U.S.C. 112, second paragraph, for lack of antecedent basis for a distribution list, randomized distribution list, and a “randomizing” step preformed previously. In reply, claim 10 has been amended to depend upon claim 9, and claim 28 has been amended to depend upon claim 27. Support for this amendment is found in applicant’s claims 16, 17, 34, 35 as originally filed, and in step 181 of FIG. 17 in the program instruction loop of FIGS. 17 and 18 as described in applicant’s specification on page 40 lines 15-20.

On pages 3 to 4 of the Official Action, claims 1-6 and 19-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over Van Rietschote et al. (U.S. Patent 7,203,944 B1) in view of Greuel et al, U.S. 7,003,564 B2), and further in view of Baratz et al. U.S. 2002/0034190 A1). Applicant respectfully traverses and respectfully submits that it would not have been obvious to one of ordinary skill in the art to modify Van Rietschote in view of Greuel and Baratz in order to reconstruct the applicant’s invention of claims 1-6 and 19-24. Van Rietschote appears to entirely satisfactory for its intended purpose of balancing load caused by virtual machines upon distributed processing units (computer systems 10A, 10B, ..., 10N) in a data

processing network. Van Rietschote balances this loading in a substantially different way from the method of applicant's claims 1-6 and 19-24.

Van Rietschote balances the load caused by the virtual machines upon the distributed processing units by calculating the load of each virtual machine according to the resources that it uses. (Van Rietschote, col. 8, lines 35-37.) For example, the load is a weighted sum of CPU time, I/O activity, and memory consumed. (FIG. 4.) The CPU time can be a percentage of the total execution time that has been used for the virtual machine. (Col. 10 lines 58-62.) The virtual machines are migrated among the computer systems to balance load caused by the virtual machines. (Title.) The VM migration code on each computer system 10A-10N may be activated periodically, and may randomly select another computer system with which to compare loads and to potentially migrate a virtual machine. Over time, the periodic random selecting by each computer system may lead to relative balance in the loads on the computer systems. (Col. 5, lines 30-37.) By selecting a virtual machine having a load that is close to $1/2$ of the difference between the requesting computer system's load and the selected computer system's load, the VM migration code may approximate evening the load between the requesting computer system and the selected computer system.

In contrast to Van Rietschote, the method of applicant's claim 1 performs load balancing by a three-step process of obtaining respective utilization value of each distributed processing unit; applying a mapping function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit; and using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit

specifies a respective frequency at which the work requests are distributed to said each distributed processing unit.

Regarding differences between applicant's claim 1 and Van Rietschote, paragraph 7 on page 5 of the Official Action recognizes that "Van does not explicitly teach obtaining a respective weight by using a mapping function ..." Page 5 of the Official Action cites Greuel for "obtaining for each system variable, a mapping by which a raw data value associated with the corresponding system variable is mapped to a score, and for each system variable, a weight." (Greuel, col. 2, lines 29-42). For example, CPU utilization is mapped into a score. (Col. 5, lines 10-29.) A composite score for displaying health of a computer network is computed as a weighted average of scores. (Title; abstract lines 12-14; col. 6 lines 13-19.)

Paragraph 8 on page 5 of the Official Action further recognizes that "Van and Greuel do not explicitly teach the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit." Page 6 of the Official Action cites Baratz paragraphs 47-48 for a teaching of such weights. However, these paragraphs say:

[0047] According to the present invention there is provided an improved communication network wherein a plurality of users communicate via a plurality of network elements connected by a plurality of signaling links, the improvement including: (a) at least one signaling mediation probe for monitoring usage of the network; and (b) an availability server for predicting, based on the monitored usage, a forthcoming time interval wherein sufficient network elements will be available for sending a message to one of the users.

[0048] The present invention adds, to a network such as network 100, two new types of hardware: one or more signaling mediation probe and an availability server. The mediation probes monitor network usage, either by monitoring usage of one or more of the signal links, or by receiving usage information from one or more of the network elements, or by both monitoring usage of one or more of the signal links and receiving usage information from one or more of the network elements. Based on this monitoring, the availability server predicts a forthcoming time interval during which sufficient network elements will be available to send a predetermined message to one or more users. When that time interval arrives, the availability server initiates the sending of the message. "Initiating" the sending of the message includes at least the following possibilities: either the availability server itself sends the message to the user or users, or the availability server triggers the sending of the message to the user or the users by a different device.

Applicant respectfully submits that there are further differences between the subject matter of applicants' claim 1 and the cited references. For example, page 4 of the Official Action says: "Thus, Van inherently discloses a respective utilization value of each distributed processing unit is obtaining." The reference to inherency implies that this element of applicant's claim is not expressly disclosed in the reference. In addition, an inherent feature may be relied upon to only if such inherency would have been obvious to one of ordinary skill in the art." Kloster Speedsteel AB v. Crucible, Inc., 793 F.2d 1565, 1576,230 U.S.P.Q. 81, 88 (Fed. Cir. 1986), cert. denied, 479 U.S. 1034 (1987). A retrospective view of inherency is not a substitute for some teaching or suggestion which supports the selection and use of the various elements in the particular claimed combination. In re Rijckaert, 9 F.3d 1531, 1534, 28U.S.P.Q.2d 1955-1957 (Fed.

Cir. 1993)(optimal condition of matching signal time exactly to recording time is not “inherent” in the prior art).

More importantly, there should not be confusion of the virtual machines of Van with the computer systems in Van if the virtual machines are to be considered work requests that are distributed to the computer systems of Van as is done in the first paragraph on page 5 of the Official Action. If the virtual machines of Van are considered to be work requests and the computer systems of Van are considered to be distributed work requests, then the calculating of the load of each virtual machine according to the resources that it uses in Van is not properly considered to be “obtaining a utilization value of each distributed processing unit” and “applying a mapping function to the respective utilization value of each distributed processing unit to obtain a respective weight of said each distributed processing unit.”

In view of the differences between applicant’s claim 1 and Van, Greuel, and Baratz as set out above, the fact that Van discloses a substantially different method of load balancing and is entirely suitable for performing its intended function as set out above, and the different fields of use, objectives, and problems addressed by Van, Greuel, and Baratz, it is respectfully submitted that improper hindsight would be required to pick and choose the particular elements of applicant’s claims 1-6 and 19-24 for combination and modification as required to reconstruct the invention of applicant’s claims 1-6 and 19-24. Greuel et al. is directed to a method and apparatus for customizably calculating and displaying health of a computer network (Greuel, Title), and does not appear to concern load balancing. Baratz is directed to managing communication in a cellular network (such as GSM networks, GPRS networks, IS95-B

networks, and HSCSD networks) to achieve better use of the network capacity of a cellular network and to enable new services based on resource availability of the cellular network by considering the resource availability of network components in controlling applications and services that can be scheduled to times when such resources are available. (Baratz, page 2, par. [0045].)

When determining whether a claim is obvious, an examiner must make “a searching comparison of the claimed invention – including all its limitations – with the teaching of the prior art.” In re Ochiai, 71 F.3d 1565, 1572 (Fed. Cir. 1995) (emphasis added). Thus, “obviousness requires a suggestion of all limitations in a claim.” CFMT, Inc. v. Yieldup Intern. Corp., 349 F.3d 1333, 1342 (Fed. Cir. 2003) (citing In re Royka, 490 F.2d 981, 985 (CCPA 1974)). Moreover, as the Supreme Court recently stated, “there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.” KSR Int’l v. Teleflex Inc., 127 S. Ct. 1727, 1741 (2007) (quoting In re Kahn, 441 F.3d 977, 988 (Fed. Cir. 2006) (emphasis added)). A fact finder should be aware of the distortion caused by hindsight bias and must be cautious of arguments reliant upon ex post reasoning. Id., citing Graham, 383 U.S. at 36 (warning against a “temptation to read into the prior art the teachings of the invention in issue” and instructing courts to “guard against slipping into the use of hindsight.”).

With respect to applicant’s dependent claims 5 and 23, it is not seen where Greuel table 233 in FIG. 1B shows the respective weight or col. 4 or col. 5 shows that the respective weight is programmed into a mapping table. Instead, Greuel col. 7 lines 16-19 says the weights are specified by the composite health score definition 305.

In paragraph 15 on page 8 of the Official Action, applicant's dependent claims 7-8 and 25-26 were rejected under 35 U.S. 103(a) as being unpatentable over Van Rietschote et al. (U.S. Patent 7,203,944 B!) in view of Greuel et al, U.S. 7,003,564 B2), and further in view of Baratz et al. U.S. 2002/0034190 A1) as applied to claim 1 and 19 above, and further in view of Garnette et al. (U.S. 7,032,037). Applicant respectfully traverses, and respectfully submits that Garnette does not provide the elements of applicant's base claims 1 and 19 that are missing from Van Rietschote and Greuel and Baratz as discussed above, nor does Garnette provide sufficient additional motivation for reconstructing applicant's invention of the base claims 1 and 19 from Van Rietschote and Greuel and Baratz.

In paragraph 19 on page 9 of the Official Action, applicant's dependent claims 9 and 27 were rejected under 35 U.S. 103(a) as being unpatentable over Van Rietschote et al. (U.S. Patent 7,203,944 B!) in view of Greuel et al, U.S. 7,003,564 B2), and further in view of Baratz et al. U.S. 2002/0034190 A1) as applied to claim 1 and 19 above, and further in view of Karpoor (U.S. 5,884,038). Applicant respectfully traverses, and respectfully submits that Karpoor does not provide the elements of applicant's base claims 1 and 19 that are missing from Van Rietschote and Greuel and Baratz as discussed above, nor does Karpoor provide sufficient additional motivation for reconstructing applicant's invention of the base claims 1 and 19 from Van Rietschote and Greuel and Baratz.

In paragraph 23 on page 11 of the Official Action, applicant's dependent claims 10 and 28 were rejected under 35 U.S. 103(a) as being unpatentable over Van Rietschote et al. (U.S. Patent 7,203,944 B1) in view of Greuel et al, U.S. 7,003,564 B2), and further in view of Baratz et al. U.S. 2002/0034190 A1) as applied to claim 1 and 19 above, and further in view of Grochowski (U.S. 6,115,807). Applicant respectfully traverses, and respectfully submits that Grochowski does not provide the elements of applicant's base claims 1 and 19 that are missing from Van Rietschote and Greuel and Baratz as discussed above, nor does Grochowski provide sufficient additional motivation for reconstructing applicant's invention of the base claims 1 and 19 from Van Rietschote and Greuel and Baratz. In addition, Grochowski is directed to a static instruction decoder utilizing a circular queue to decode instructions and select instructions to be issued. (Grochowski, Title.) It is respectfully submitted that without the benefit of improper hindsight a person of ordinary skill in the data processing network art would not be looking to the superscalar processor art such as Grochowski to improve the load balancing in the data processing network of Van. Nor is it seen where Grochowski discloses the "randomizing" step or function expressly recited in applicant's dependent claims 10 and 28.

Moreover, applicant objects to the reference to Hossack U.S. 6,819,276 for a special definition of rotator so that rotator means randomizer. As a matter of law, a patent applicant may be his or her own lexicographer and give special meaning to words in his or her own patent, but if the applicants' specification does not reveal any special definition for a term in an applicant's claim, then the term must be construed according to its ordinary meaning (i.e., not a special meaning used in a patent by someone else) that the term would have to a person of ordinary skill in the art in question at the time of the invention. Phillips v. AWH Corp., 415 F.3d 1303, 1312-

13 (Fed. Cir. 2005)(en banc). In addition, Hossack U.S. 6,819,276 is directed to non-analogous art of a noise shaper system of an analog-to-digital converter. Non-analogous art cannot properly be pertinent prior art under 35 U.S.C. §103. In re Clay, 966 F.2d 656, 659, 23 U.S.P.Q.2d 1058, 1061 (Fed. Cir. 1992); In re Pagliaro, 210 U.S.P.Q. 888, 892 (C.C.P.A. 1981). It should also be clear to a person of ordinary skill in the art that the rotator or barrel shifter 130 in FIG. 1 of Hossack U.S. 6,819,276 may function as a randomizer only when the barrel shifter is combined with a pseudo-random number generator 160. (See Hossack U.S. 6,819,276 col. 2 lines 18-34.) Note that anticipation is established only when a single prior art reference discloses, expressly or under the principles of inherency, each and every element of a claimed invention as well as disclosing structure which is capable of performing the recited functional limitations. RCA Corp. v. Appl. Dig Data Sys., Inc., 730 E. 2d 1440, 1444 (Fed. Cir. 1984); WL. Gore & Assocs., Inc. v. Garlock, Inc., 721 F.2d 1540, 1554 (Fed Cir. 1983).

In paragraph 26 on page 13 of the Official Action, applicant's independent claims 11 and 29 were rejected 35 U.S. 103(a) as being unpatentable over Van Rietschote et al. (U.S. Patent 7,203,944 B1) in view of Greuel et al, U.S. 7,003,564 B2), and further in view of Kapoor (U.S. 5,884,038). Applicant respectfully traverses. Applicant respectfully submits that applicant's claims 11 and 29 are distinguished from the proposed combination of Van Rietschote et al. (U.S. Patent 7,203,944 B1) in view of Greuel et al, U.S. 7,003,564 B2) for the reasons discussed above with reference to applicant's claim 1. Applicant also respectfully submits that Kapoor does not provide the elements of applicant's base claims 1 and 19 that are missing from Van Rietschote and Greuel as discussed above, nor does Kapoor provide sufficient additional motivation for

reconstructing applicant's invention of the base claims 1 and 19 from Van Reitschote and Greuel. Moreover, applicant's claims 11 and 29 recite "repetitively randomizing the distribution list during the distribution of the work requests to the distributed processing units." Although Karpoor discloses a randomizing step 413 in FIG. 4, Karpoor says "FIG. 4 is a flow diagram illustrating the initialization of internal arrays or tables of another embodiment of a DNS server with skewed lock prevention off in accordance with the teachings of one embodiment of the present invention." It is not seen where Karpoor discloses that this randomizing is performed repetitively during the distribution of the work requests to the distributed processing units" instead of during initialization.

In paragraph 32 on page 16 of the Official Action, applicant's claims 12-15 and 30-33 were rejected 35 U.S. 103(a) as being unpatentable over Komani (U.S. 2003/0187711 A1) in view of Greuel et al. U.S. 7,003,564 B2), and further in view of Garnett et al. (U.S. 7,032,037). Applicant respectfully traverses. Applicant respectfully submits that the invention of applicant's claims 12-15 and 30-33 would not have been obvious from Komani, Greuel, and Garnett for reasons similar to the reasons given above with respect to applicant's claim 1.

Komani discloses in FIG. 1 a virus checking program 4 for a personal computer 1, and a server 2 for schedule management to notify the virus checking program of unoccupied time in the schedule (command of startup). Komani appears to be entirely satisfactory for its intended purpose of a personal computer performing virus checking for the personal computer during unoccupied time. (See, e.g., page 1 paragraph [0007].) Thus, there is no reason to modify

Komani for load balancing of the virus checking requests from a network file server to virus checking servers, for example, by a round-robin technique.

In paragraph 41 on page 19 of the Official Action, applicant's claims 16, 18, 34 and 36 were rejected 35 U.S. 103(a) as being unpatentable over Komani (U.S. 2003/0187711 A1) in view of Greuel et al. U.S. 7,003,564 B2), and further in view of Garnett et al. (U.S. 7,032,037) as applied to claims 12 and 30 above, and further in view of Karpoor (U.S. 5,884,038). Applicant respectfully traverses. Karpoor does not provides a sufficient motivation for combining and modifying Komani, Greuel, and Garnet to reconstruct the invention of applicant's base claims 12 and 30. Moreover, with respect to the applicant's claims 18 and 36, applicant respectfully submits that Garnett does not disclose randomizing a distribution list repetitively as claimed

In paragraph 48 on page 23 of the Official Action, applicant's claims 17 and 35 were rejected 35 U.S. 103(a) as being unpatentable over Komani (U.S. 2003/0187711 A1) in view of Greuel et al. U.S. 7,003,564 B2), and further in view of Garnett et al. (U.S. 7,032,037) as applied to claims 12 and 30 above, and further in view of Karpoor (U.S. 5,884,038, and further in view of Grochowski (U.S. 6,115,807). Applicant respectfully traverses. Neither Karpoor nor Grochowski provides a sufficient motivation for combining and modifying Komani, Greuel, and Garnet to reconstruct the invention of applicant's base claims 12 and 30. Moreover, with respect to the applicant's claims 18 and 36, applicant respectfully submits that neither Garnett nor Grochowski provides sufficient motivation for re-randomizing the distribution list for re-use

once the end of the distribution list once the end of the distribution list is reached, for the reasons discussed above with respect to applicant's claims 10 and 28.

In view of the above, it is respectfully submitted that the application is in condition for allowance. Reconsideration and early allowance are earnestly solicited.

Respectfully submitted,

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